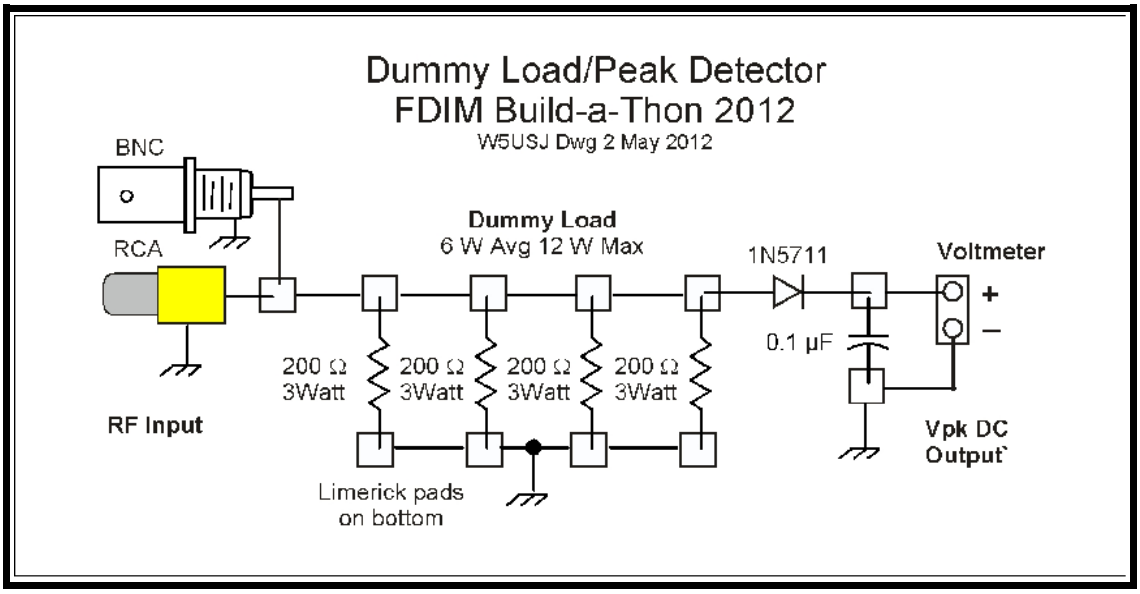
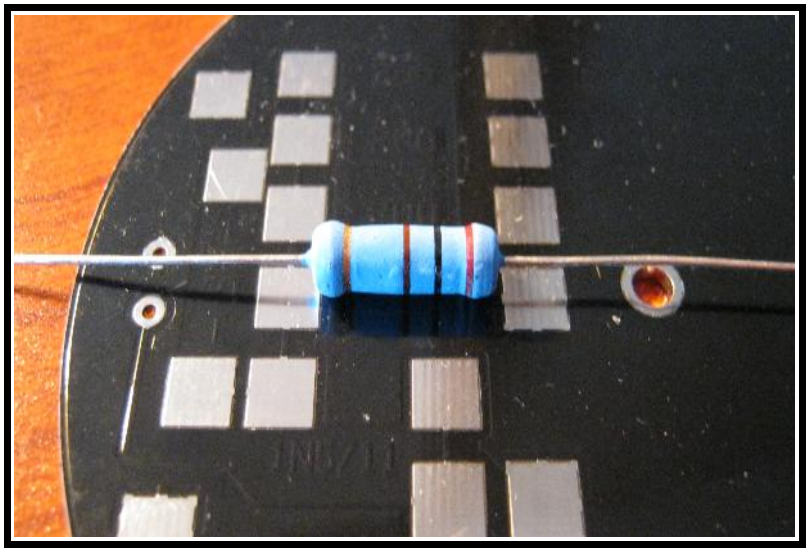
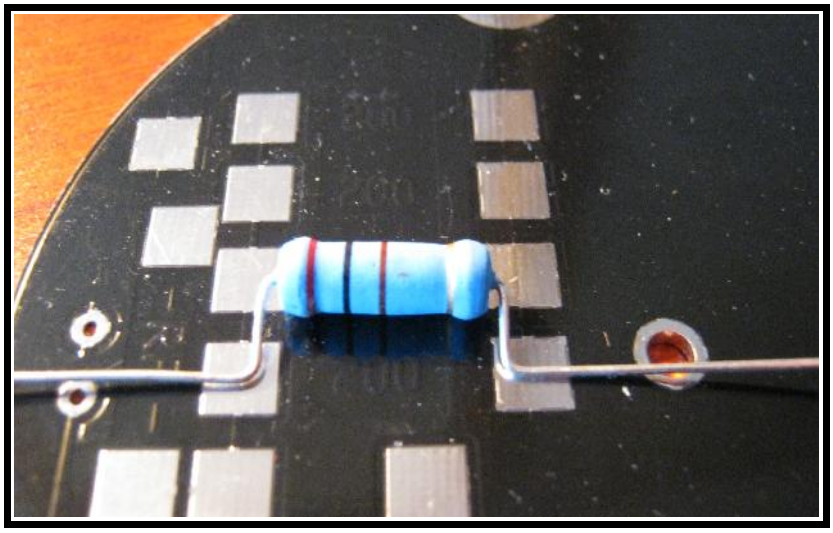


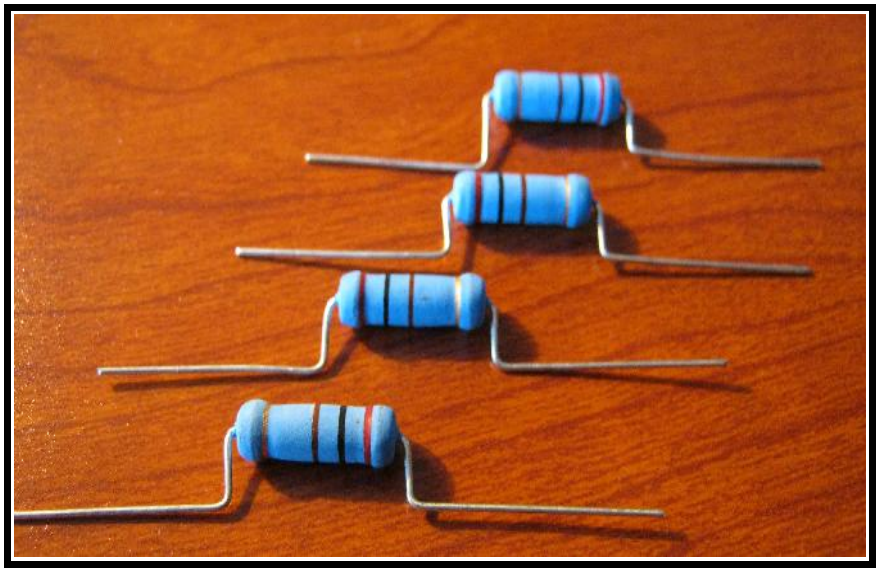
The electronic portion of the Solderman kit is a 6 watt dummy load followed by a diode peak detector circuit for measuring transmitter output power. Study the schematic above to see what you are building. I designed the circuit board as a Limerick construction project. The square pads are like what you would glue down when building with Manhattan construction techniques. The big difference is that I layout the board like Manhattan pads but then interconnect the pads with traces on the board. Then the whole board is produced with an additional solder mask and silk screen to aid in construction. The theme of the FDIM Buildathon was 'Tips and Techniques' so I also intentionally included a mixed bag of features in the buildathon kit to provide talking points for the tips and techniques that we wanted to share. I'll try to explain them in the following construction steps.



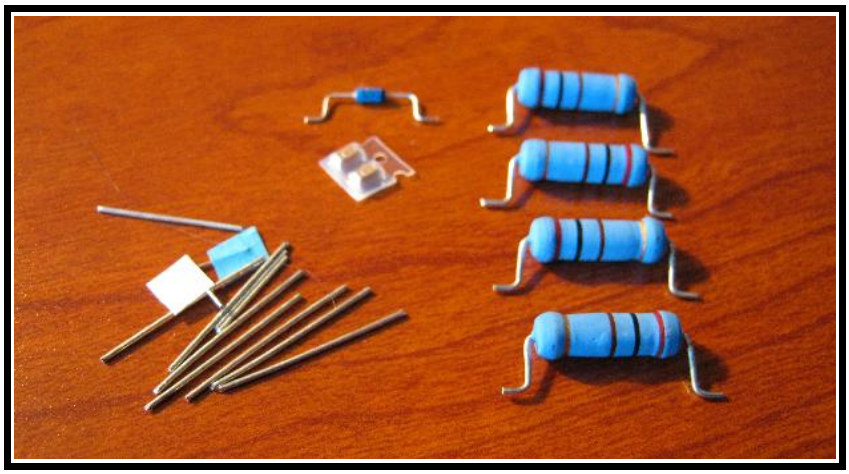
The first step is to prepare the components for soldering onto the board. Here we show the sizing of the 3 watt resistors to determine HOW we need to bend the leads.



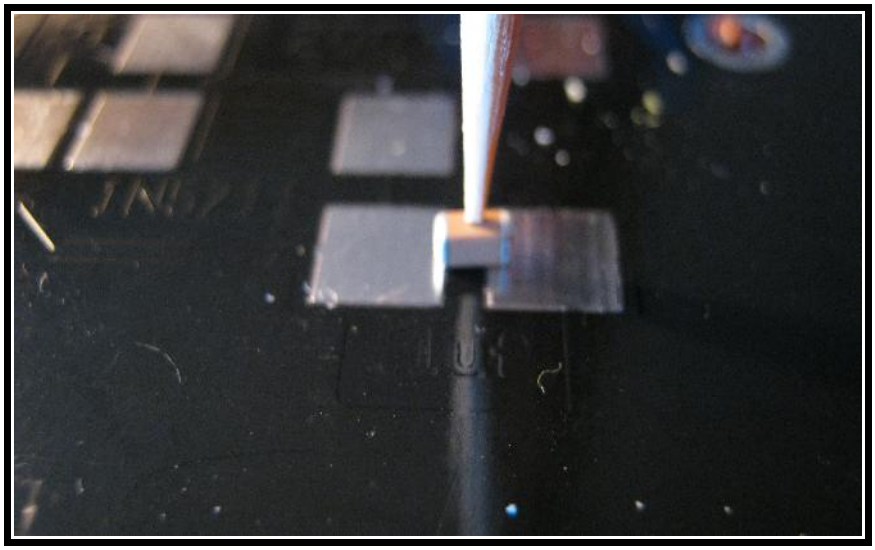
This above picture shows the resistor leads bent in order to stand the resistor up onto the pads for assembly.



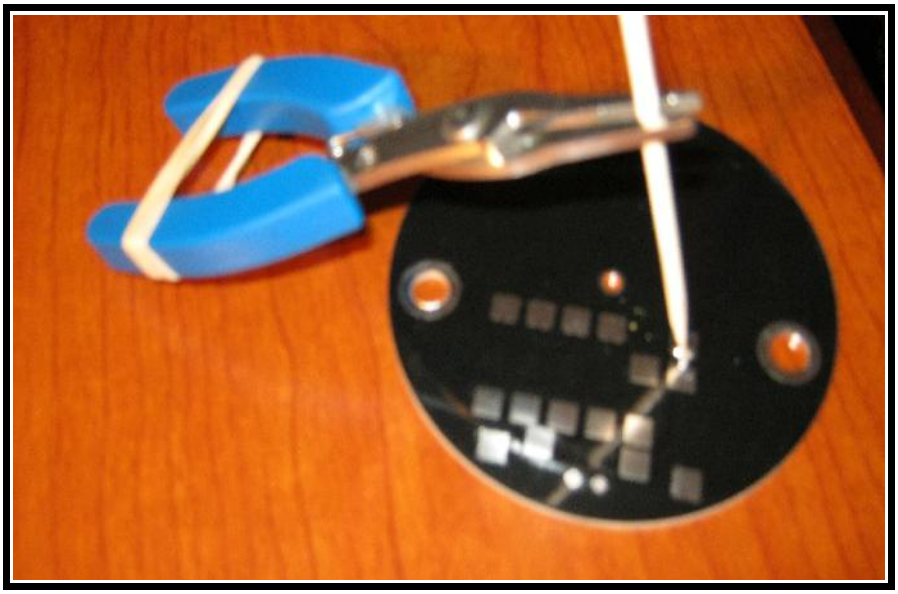
All 4 resistors are mounted onto pads with identical spacing so all the leads are bent alike.



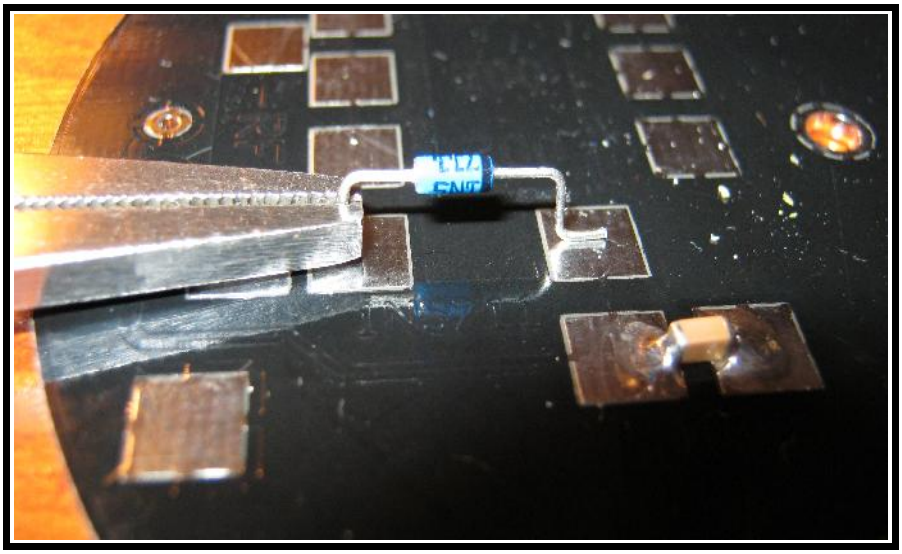
The excess lead length on the 'feet' are cut off so the feet stay on the pads.



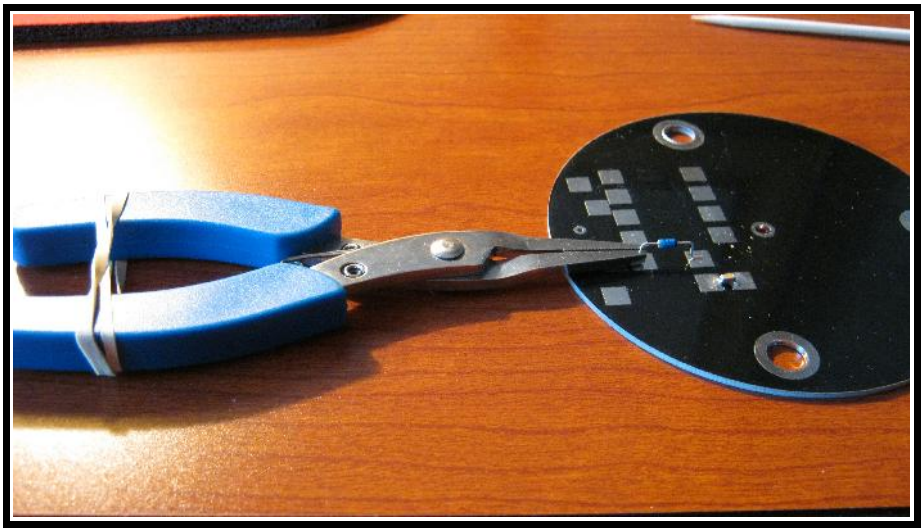
For an additional talking point, the capacitor was chosen as a surface mount component. The component is placed across the corresponding pads (bridging the gap) and held in place using a wooden kitchen skewer.....



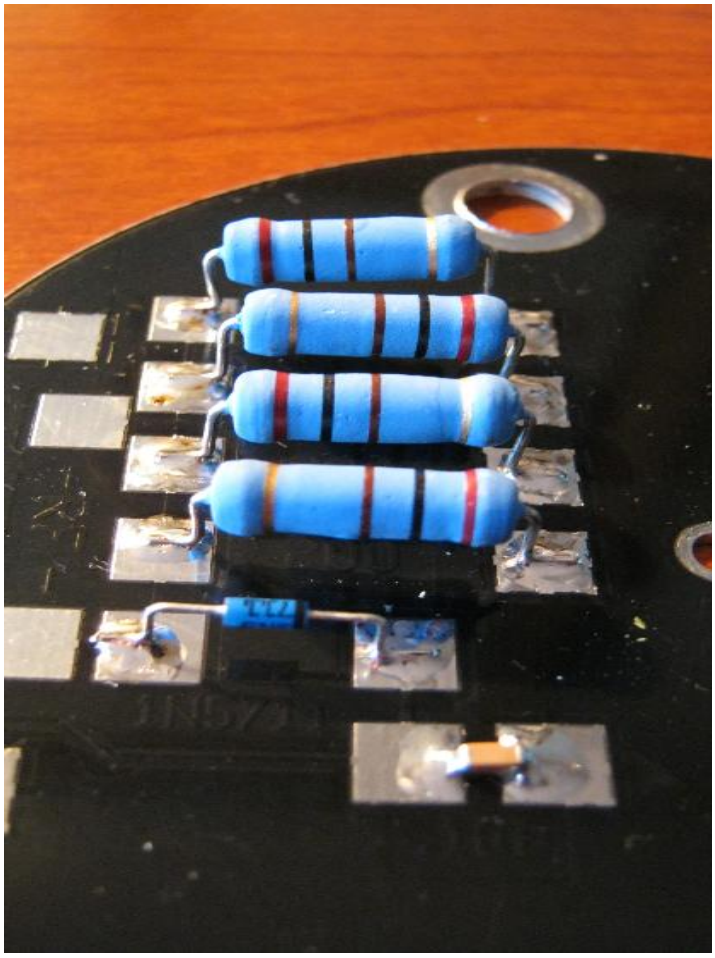
A small pair of pliers with a rubber band around the handles makes a very handy skewer grabber and down pressure device. You can easily re-grip the skewer for each component and also reposition it for ease of assembly. No additional hold down device is needed..just a pair of pliers, a skewer and a rubber band.



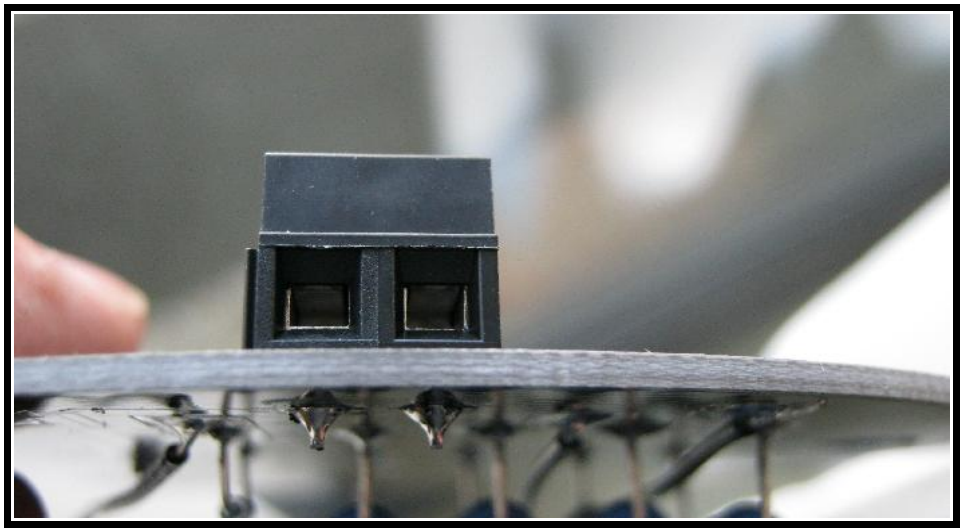
Installing components on Limerick pads is also a cinch using the pliers...



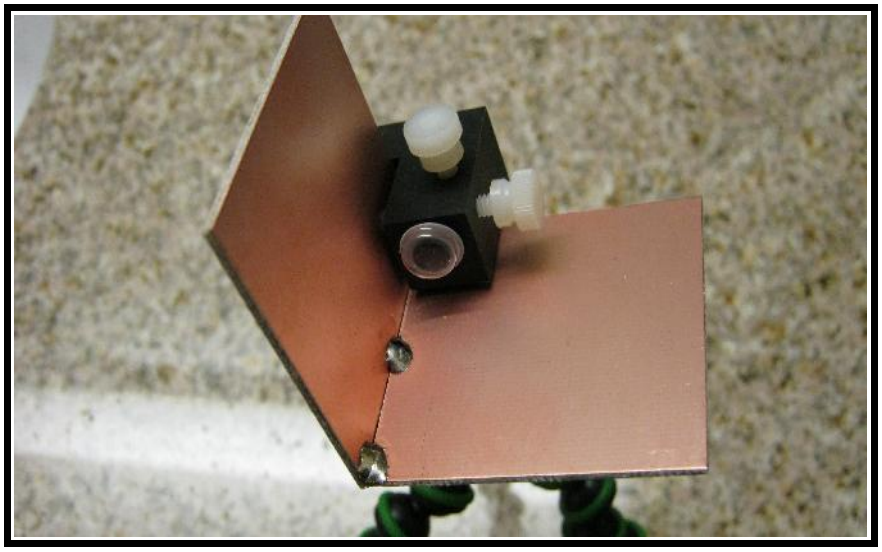
and rubber band trick. The pliers will hold the component vertical while you tack solder the free end using BOTH of you free hands for soldering.



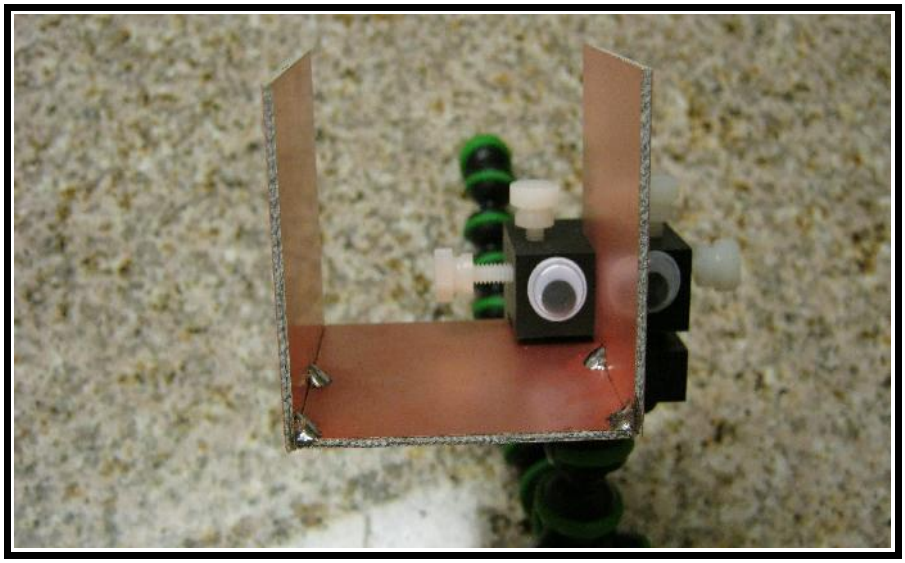
Now you can solder the resistors using the same trick.



The 2 position screw terminal is soldered to the TOP side of the circuit board.

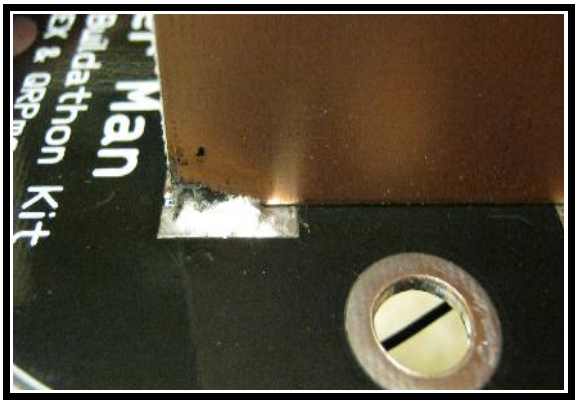


Here is a step designed to gain a little experience building box assemblies out of bare copper circuit board. In the buildathon, we had QRPme's SBSS blocks to hold the panels square while tack soldering. You must allow your tack solder joints to completely cool before removing whatever device you use to hold the joint square or else the cooling solder will 'pull' the joint out from 90 degrees.

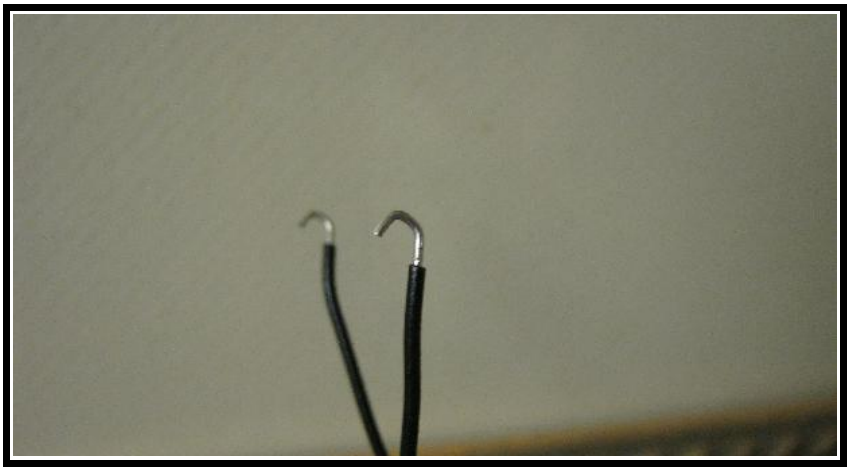


Note the pcb overlap pattern indicated on the circuit board silk screen when soldering the square panels together...

The solder roll holder 'box' is now tack soldered onto the pads on the circuit board.



Builders had to apply labels to their cans and then punch 2 appropriate sized holes in the proper locations in the can in order to mount the meter connectors.



Solder leads to the connectors BEFORE mounting the connectors in the holes in the cans. It is much easier to solder leads to the connectors out in the open than when you have to do it down inside the can. Remember that a good electrical connection starts with a good mechanical connection. Form hooks in the pieces of hookup wire and crimp them into the holes on the connector leads whenever possible.

You can solder the 2 connectors in parallel and then use a single set of leads to attach to the proper pads on the circuit board. The Solderman kit is starting to take shape.

The next step is to punch a couple of holes into the 2 side panels of the solder roll holder. They should be located about 1/4" down from the top edge and a little forward of the center line of the holder. Use either the nail and plastic tubing 'keeper' of the 2 short screws with double nuts to hold your roll of solder in the holder.

Now you need to transfer all the neat stuff from the third hand device to the two holes located on either side of the solder roll holder. This is called hacking! The left side hole is for the Lighted magnifier and third hand device. Once you install the lighted magnifier, you need to adapt the LED to use the 9 volt battery snap provided in the kit OR leave it alone and add a small 3 cell battery box to the can. A 1K resistor replaces the LED resistor on the original magnifier when powering it from a 9 volt battery. Use a small square of Velcro to attach the battery to the can base.

The right side hole is used to mount the soldering iron holder. There are 3 plastic washers to use as spacers on the soldering iron holder bracket in order to mount it tightly in place on the circuit board.

Glue three 3/4" x 2 1/2" circuit board strips together to make a spacer for the spring binder clip. This little assembly will take up the slack when holding a circuit board. Mount the spring binder clip to the front of the circuit board using a short machine bolt and nut. I glued the pcb spacer assembly to the lower jaw of the binder clip o make the clip easier to use.

The whole assembly is then mounted to the tuna can using the long machine screw and nut.

You have now completed the Solderman kit. You now have a license to go build something!

Go!

Build something!

HAVE FUN!